A Prosodic Approach to Germanic Reduplicating Verbs: a Synchronic and Diachronic Investigation

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ABSTRACT

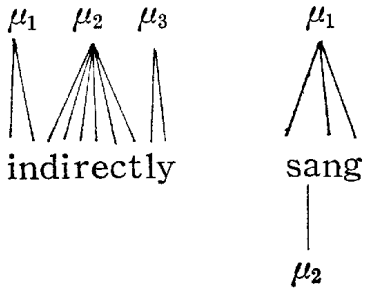
The purpose of this article is to develop a prosodic model fo Germanic reduplicating verbs. Within this framework, in line with McCarthy (1981), reduplication is characterized as a many-to-one association between a prosodic template and a melodic tier. It will be claimed that the proposed model is superior for the following reasons: 1) it can provide a principled description of Gothic reduplication; 2) it can account for the mechanism whereby reduplication came to be replaced by ablaut in the other Gmc: 3) it can correctly derive certain anomalies attested in the new ablaut series. In the course of investigation, moreover, I shall argue for a metrically(s/w)*-based version of prosodic theory as an alternative to the current* C/V- *based counterpart.*

1. Introductory Remarks

Recent works by Halle and Vergnaud (1980), Harris (1980), McCarthy (1981), Stemberger (1981), etc. explore a prosodic (or an autosegmental) approach in the field of morphology. And these investigations turn out to be quite illuminating in that they successfully present elegant descriptions to some of the

thus far challenging phenomena. The assumption underlying such a prosodic model of morphology is that morphemes constitute autosegmental tiers on their own which are respectively dominateb by the node μ_n:

(1)



Moreover, McCarthy (1981), in tackling Arabic verb morphology, a typically nonconcatenative one, abstracts away from surface phonological forms the purely segmental structure consisting solely of the configuration of *V*'s and *C*'s (=prosodic template). To put it another way, he sets up two different levels of representation, a prosodic template and an autosegmental tier comprising melodic bearing elements. The latter constitutes a morphologically-structured concatenation of melodic elements dominated by an appropriate μ_n (cf. (1)). In doing so, McCarthy reduces a substantial part of morphology to characterizing the associationability between a prosodic template and relevant morpheme-constituting melodic elements.

The purpose of this paper is to investigate Germanic reduplicating verbs in the spirit of this prosodic model (with some non-trivial refinement added to it), thereby attempting to give a solution to some of the long-standing problems involved therein. Section 2 poses major problems to be dealt with relating to Germanic reduplicating verbs. Section 3, the central part of this article, is devoted to the detailed arguments for my proposed analysis. Section 4 constitutes a critical review of some of the recently presented competing hypotheses concerning the development of the ablauting verbs out of the reduplicating counterpart. Section 5 argues for a metrically (*s*/*w*)-based

prosodic theory of reduplication as opposed to the current C/V-based counterpart.

2. Problems

In this section, I shall point out major problems awaiting a principled explanation in the domain of Gmc reduplicating verbs.

To start with Gothic. Class VII strong verbs form their preterite by reduplication in the manner which can be stated informally as follows: (Note that nothing vital hinges on the choice of a particular way the phenomenon at issue is expressed here.)

1) If they begin with *st-* or *sk-*, then reduplicate these initial clusters:
2) Otherwise reduplicate an initial consonant if there is any:
3) Add *aí* (/e/) to the immediate left of the stem initial.

Hence, the following examples:

(2) *hald-* / *haíhald* 'hold'
-stald- / *-staístald* 'possess'
skáid- / *skaískáid* 'divide'
fráis- / *faífráis* 'tempt'
áuk- / *aíáuk* 'add'
slēp- / *saíslēp* 'sleep'

The situation stated above makes us posit several questions on the mechanism of the Gothic reduplication:

1) Why is a stem-initial consonant, rather than, say, a stem-final counterpart, subject to reduplication?
2) Why are vowel-initial verbs also augmented by *aí*, which do not suffer reduplication at all?
3) In connection with 1) and 2), why do vowel-initial verbs

not reduplicate a stem-final consonant when they cannot do so with regard to a stem-initial one?

4) Why are only *st-* and *sk-* reduplicated as units to the exclusion of the other consonant clusters?

Any model purported to describe Gothic strong verb VII, or Gmc reduplication in general for that matter, must provide a principled solution to the above-listed problems.

Let us turn to other Germanic languages. Interestingly enough, Class VII in non-Gothic, excluding some residual forms which need not concern us in the present study, forms the preterite not by reduplication, but by vowel alternation. This discrepancy has given birth to various interpretations concerning the possible relationship between the two apparently divergent stem-formations utilized in Gothic on the one hand, and the remaining Gmc on the other. The numerous views expressed thus far, however, can be divided into two classes:

1) those which take the different stem-formations to be organically related:

2) those which regard them to be independently developed.

Since this is not the place for tracing past investigations, I leave it to interested readers to refer to relevant works for review[1]. What needs to be emphasized in this regard is that the former interpretation, i.e. the one deriving the ablauting verbs from the reduplicating counterparts is what one should give priority to as a matter of strategy in exploring the relationship under discussion. The reason for this is that the view at issue can be more revealing by virtue of its reducibility of the divergent phenomena to a common origin, thereby providing us with more insight into the issue than otherwise. In describing Gmc reduplication, therefore, in the absence of evidence to the contrary, one should preferably construct an apparatus which is capable of dealing with the ablauting Class VII as well. More

specifically, taking into account the temporal relation between Gothic and the remaining Gmc, and the existence of some residual forms of reduplication in the latter, a desirable descriptive model is such that can explain how the reduplication as is witnessed in Gothic was transformed into the vowel alternation (with some language-specific anomalies) as is obtained in non-Gothic.

To sum up, then, the major problems requiring explanation relating to the Gmc reduplicating verbs are as follows:

1) Why reduplicate an initial consonant (cluster), rather than those occupying other positions?

2) Why do vowel initial stems allow only the *ai*-augmentation without taking part in reduplication?

3) Why are *st-* and *sk-* subject to reduplication as a whole?

4) How did the ablauting Class VII develop out of the original reduplicating counterpart?

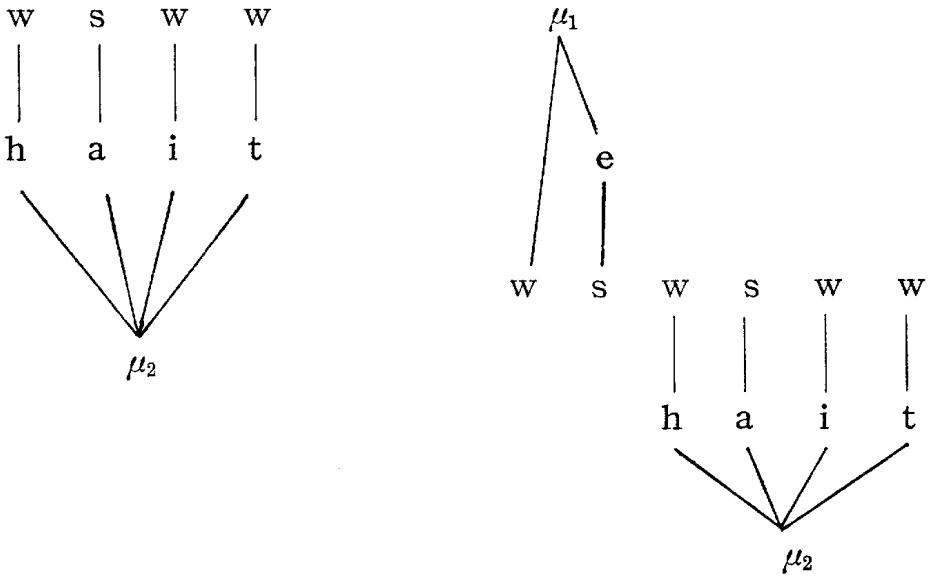
5) How can we explain certain anomalies in the resultant ablaut in some non-Gothic languages?

3. A Prosodic Analysis

3.1. An Overview

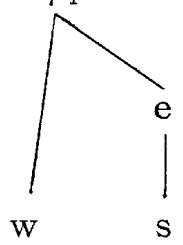
Following the line of recent proposals by McCarthy (1981) and anticipating a certain refinement which will be specifically argued for later (cf. Section 5), I take the surface reduplicated forms to be the result of the universally constrained association between the prosodic template and the melodic elements. The latter are in turn subsumed under the node μ, denoting a morpheme. This initial hypothesis leads to the following representations:

(3) *háit* *haíháit*

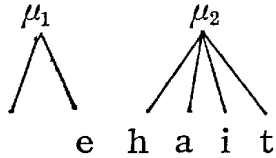


Key: μ_1=prefix; μ_2=stem.

What the above representation boils down to is the claim that the so-called Gothic reduplicating verbs form their preterite by a monosyllabic prefix (μ_1), whose nucleus (*s*) is /e/ (〈*aí*〉) and whose onset (*w*) is lexically unspecified. That is, Class VII makes the preterite by means of the prefix which is stored in the lexicon in the form of μ_1



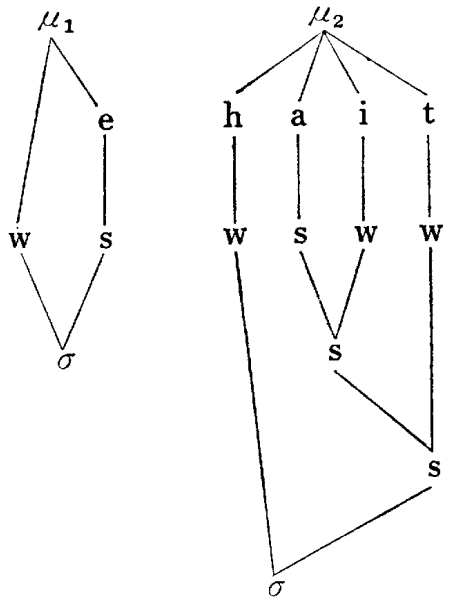
In the following, I will give substance to my proposal sketched above by exemplifying how the derivation proceeds. As alluded to a moment ago, I hold the preterite stem-formation of Class VII to be a process of prefixation. Hence the concatenation μ_1 μ_2 in the course of derivaton.



Furthermore, with Kiparsky (1979), Liberman and Prince (1977) and others, a segmental configuration is not just linear, but

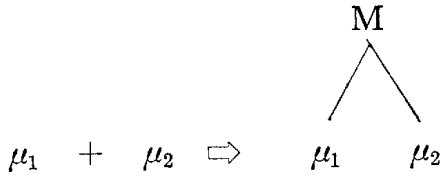
hierarchically structured, i.e. metrically representable in terms of the *s/w* opposition. Hence a block of metrically structured, autosegmentally existent morphemes:

(4)



The next move to be taken is to coordinate these lexically independent morphemes (μ_1, μ_2) into a morpho-syntactic word (*M*) (e.g. *haíháit*: pret. sg. ind. of the lexeme *háit-*) which is also a pronounceable surface form in phonological terms:

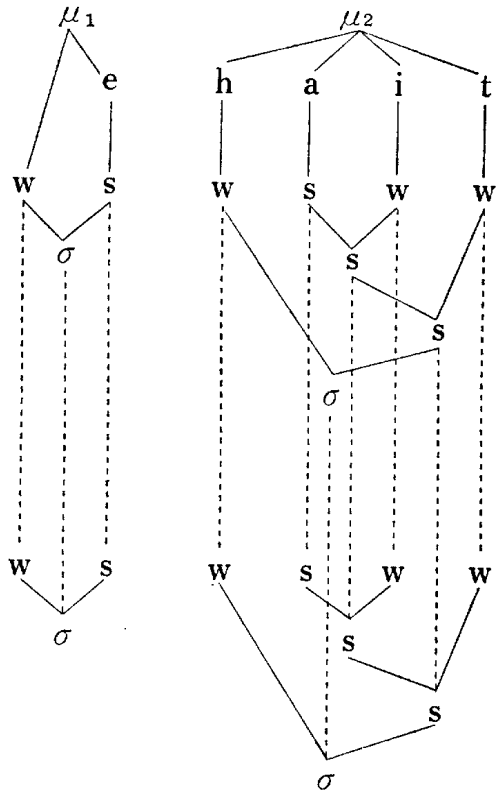
(5)



Following Linell (1979 and 1982), I call this process an expression plan construction[2]. An expression plan is intended as a basis of actual utterance of a given linguistic entity. Moreover, it is a plausible assumption that one of the coordinating principles in speech production refers to a syllable-sized structure (cf. Fujimura and Lovins 1978; Linell 1979:65 ff.). Considering these observations, it can be fairly assumed that the expression plan construction is set to work on the basis of the

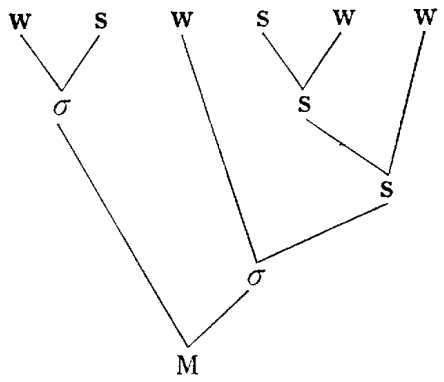
purely *s/w* hierarchical structure, rather than on a segment- or feature-based concatenation of melodically specified entities. To put it another way, the expression plan construction proceeds in such a way that the *s/w* structure provides the basis (or skeleton) onto which melodic bearing elements are mapped. Since the expression plan construction involves more than one morpheme in our case, it follows that the *s/w* structure for a whole word must be prepared first. This can be easily achieved by projecting the already-existent *s/w* structures on the part of individual morphemes onto a common spot, where the plan construction is to be carried out. This can be illustrated as follows:

(6)



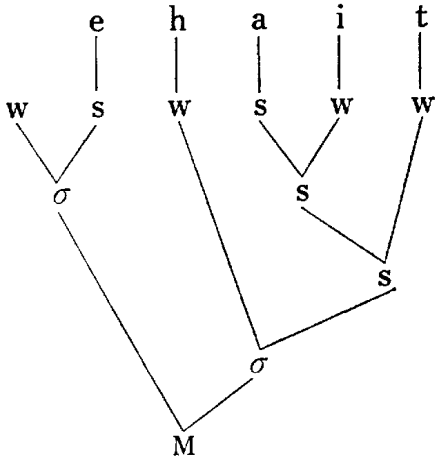
With the concomitant construction of the projected trees into an organized whole (=*M*) which proceeds in a manner easily specifiable, though I will not enter into it here, the prosodic skeleton of a given word-form is completed:

(7)



The next step is to associate the melodic elements of the respective morphemes with the prosodic template thus provided. This process is again implemented by projecting the relevant part of the morpheme structures onto the same spot whereto the *s/w* skeleton has been projected earlier. Thus one comes up with the following representation:

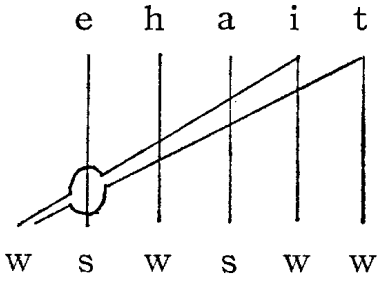
(8)



As readily noticed, the left-most *w* is left melodically uninterpreted, because the lexical representation of μ_1 itself is unspecified. This unassociated *w* must be, however, melodically specified if some possibility of doing so is at hand. Othewise it remains unpronounceable owing to the lack of specification as to the exact articulation. And here comes /h/ of *háit* as a possi-

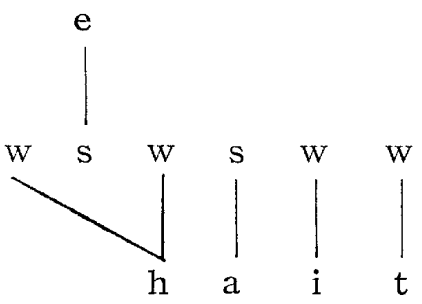
ble occupant of *w*. That /h/ is the only accessible one is obvious: since the unassociated node is *w*, /e/ of μ_1 and /a/ of *háit* (both being dominated by *s*) cannot be linked with it. This leaves us with /h/, /i/, and/t/. The latter two, however, are not well-qualified: if either of them becomes connected with *w*, then the resultant line gets crossed, which goes counter to the Universal Association Convention (UAC), which stipulates, "Association lines may not cross,":

(9)

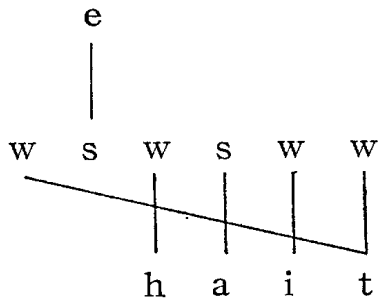


In the case of /h/, however, no problem of this sort arises. As touched upon in 1., within the framework I adopt here, a morpheme constitutes an autosegmental level on its own. This entails that the lines connecting the template and the melodic elements which do not belong to the same morpheme never get crossed. To express more clearly this cross-free relationship among different morphemes, I give the following representation, disregarding the upper *s/w* structure for the sake of convenience:

(10)



cf. *



This completes the general presentation of my new analysis of the Gmc reduplicating verbs. In what follows, then, I will argue for the explanatory power which the proposed descriptive model commands, by considering how it successfully accounts for the problems raised in the last section.

3.2. Advantages of the Proposed Analysis

1) Why reduplicate an initial, rather than a medial or final, consonant (cluster)?

The answer to this question is, as indicated earlier, automatically derivable given my descriptive apparatus: the association of non-initial consonants with the prefix initial *w* would result in the violation of UAC.

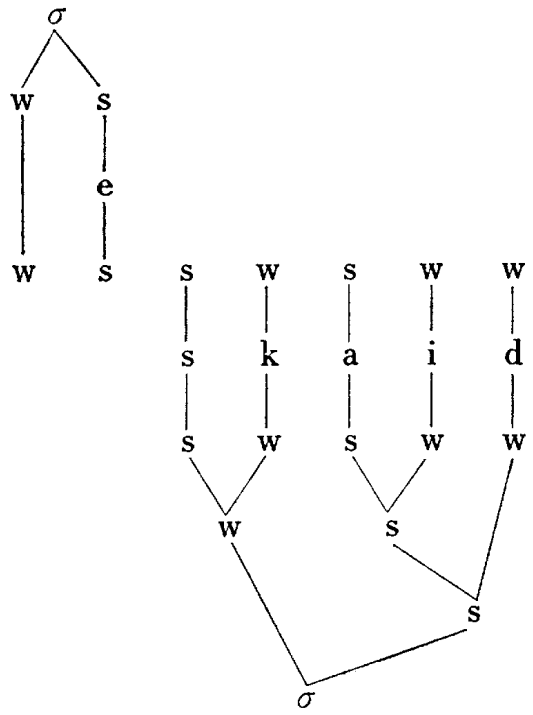
2) Why do vowel initial stems allow the *e*-augmentation at all?

Again, the answer is simple: the preterite prefix contains/e/ as its integral part, so the prefixation of it to any stems regardless of their phonological make-up leads to the *e*-augmentation. Furthermore, the absence of reduplication in the forms under consideration is to be ascribed to the same explanation as presented above.

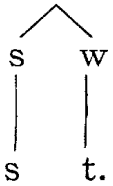
3) Why are *st-* and *sk-* alone subject to reduplication as a whole, as opposed to a single initial consonant?

A principled explanation presents itself to this otherwise challenging problem. To see this, let us look at the following representation, which obtains immediately after the mapping of the constituent morphemes is completed:

(11)

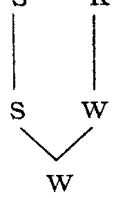


Before embarking on a detailed discussion of the issue, a word must be said about the *s/w* structure involving *st-* and *sk-*. I basically agree on this point with Kiparsky (1979:432 ff.), who sees a syllable as a metrical structure which is a function of the relative degree in sonority of its constituent segments. Since /s/, a sibilant, ranks higher in sonority than /k/ and /t/, their immediate dominating nodes are *s* and *w*, respectively, hence

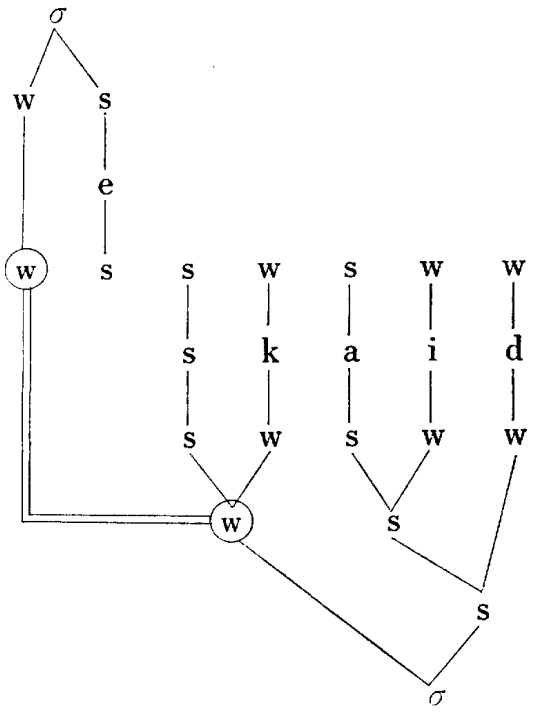


Returning to our main issue, as has been shown in the case of *haíháit*, *w* of the preterite prefix remains unassociated. Unlike *haíháit*, however, the stem-initial /s/ cannot be linked

with the *w* in question, because /s/ is dominated by *s*. Recall in this regard the analogous situation where the initial vowel (e.g. *áuk-/aíáuk*) is unrelatable to the unspecified *w*. The parallelism with *áuk-* does not carry over any further, however, because of the existence of another *w* to the left of the stem vowel. Since the *w*-dominated /i/ is not in a position to get associated with the empty *w* without contradicting UAC, the remaining one, the *w* of the next higher-order dominating both /s/ and /k/ should be matched with the unspecified *w*. Obviously, the involvement of this higher-order *w* does not lead to the violation of UAC: the notion 'cross-line' should be understood to have no bearing on the entities of different orders. Rather it exclusively involves the entities of the same hierarchical level. Thus interpreted, the association of s k with the empty *w* is a well-formed process, hence:



(12)



Since the linked *w* dominates two melodic bearing elements, /s/ and /k/ via *s* and *w*, respectively, the corresponding *w* is interpreted accordingly, thereby giving rise to *skaí-*.

The foregoing discussion has revealed that my proposal is capable of producing the reduplication involving *sk-* and *st-* without any reliance on an ad-hoc stipulation. A couple of questions, however, have yet to be clarified. First, why is the peculiarity at issue confined to just *sk-* and *st-*? My analysis just offered predicts among others that the peculiarity should be necessarily observed in any stems beginning with the consonant cluster 

but never in those with

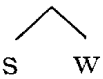
. Moreover, since the *s/w* specification is empirically interpreted, i.e. correlatable to sonority, the claim just extracted stands amenable to verification. To confirm that this prediction is borne out by the facts, consider the following first:

(13) *Schema of the Permissible Initial Consonant Clusters in Gothic*

$$\#\,O\left\{\begin{matrix} r \\ l \\ w \\ n \\ m \end{matrix}\right\}-$$

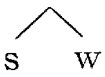
$$\#\,s\left\{\begin{matrix} p \\ t \\ k \end{matrix}\right\}\left(\left\{\begin{matrix} r \\ l \end{matrix}\right\}\right)-$$

Key: O=Obstruent. Further restrictions on the permissible properties of *O* with respect to the following sonorants are of no concern here. For details, see Moulton (1972:167).

What deserves particular attention at this point is that no more than three clusters can be assigned 

sp-, *st-* and *sk-*. This observation (disregarding *sp-* for a moment), in conjunction with

the fact that no clusters other than *st-* and *sk-* are subject to reduplication as units (cf. (1)), gives empirical confirmation to my claim.

Next, the question of *sp-*. As shown immediately above, *sp-* is the only  except *st-* and *sk-*. My prediction then is that

sp- should behave identically with *st-* and *sk-*, which apparently contradicts the fact, thereby suggesting the disconfirmation of of my theory. A closer consideration reveals, however, that this is just a pseudo-problem: the fact is that not a single stem with *sp-* belonging to Class VII in Gothic is attested. Therefore, my prediction at this point is not materially verifiable, unfortunately. The plausibility of the prediction is, however, empirically supported, though indirectly. That is, Germanic alliteration throws light on our issue. In Germanic alliterative verse, one peculiarity is that only *sp-*, *st-* and *sk-* participate in alliteration as units while the remaining clusters subject only their initials to being alliterated. The following examples substantiate this:

(14) *sp-*

ond on *sp*ēd wrecan *sp*el gerāde, (Beowulf:873)
([began to] recite a tale successfully)
fecc *sp*iǫll *sp*aclig oc *sp*áganda; (Vǫlospá:29)
(gave [her] knowledge and a divination-rod)

st-

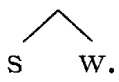
*st*ōd on *st*apole, geseah *st*ēapne hrōf (Beowulf:926)
(stood by the pillar and looked at the lofty roof)
*st*iǫrnor þat né visso, hvar þær *st*aði átto, (Vǫlospá:5)
(stars did not know where they had the place)

sk-

*sc*earp *sc*yldwiga ges*c*ād witan, (Beowulf:288)
(an acute warrior [shall] understand)
—*scá*ro á *sc*íði—, *Sc*uld ina þriðio; (Vǫlospá:20)

(—they carved a piece of wood— the third
〔maid was called〕 Sculd)

Seeing that *sp-*, *st-* and *sk-* share a number of unique characteristics in other respects as well (cf. Fujimura and Lovins 1978:112), and further that the two phenomena (i.e. Gmc reduplication and alliteration) may be even genetically relatable (**Kuryłowicz** 1970:13-16), it is fairly justified to extrapolate from this the possibie behaviour of *sp-* with respect to reduplication, thereby claiming the empirical confirmation of the prediction at issue.

In summary, then, my analysis provides a principled explanation of the peculiarity of *st-* and *sk-* by reducing it to the independently motivated metrical structure  This insight,

together with UAC, can successfully derive the historically attested forms. For theoretical implications of this metrically-based analysis, see Section 5.

It is worth pointing out in this connection that none of the formulations thus far attempted can explain the peculiarity at issue: all they can do is to give it just a description and leave it at that. Let us consider Vennemann's formulation (Vennemann 1971:123 ff.), which is a typical example of the past transformational approach to the issue: (*ibid.*, (33))

(15)

$$+\ (\langle C\rangle\begin{pmatrix} C \\ \langle -son\rangle \end{pmatrix}(C))\begin{pmatrix} V \\ +Red \\ +Past \\ -Part \end{pmatrix}$$

1 2 3 4 5 ⇨ 1 2 3 [ε] 1 2 3 4 5

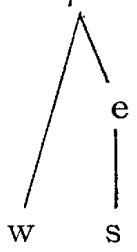
(For the sake of clarity, I refer to (33), rather than his final version (34).)

As it stands, (15) cannot attribute the peculiarity of *st-* and *sk-* to anything independently postulated. That is, the SD 〈C〉

$\left[\begin{smallmatrix} C \\ \langle -son \rangle \end{smallmatrix}\right]$ is far from constituting an explanation. It cannot exclude the equally (in purely logical terms) expected possibility $\langle C \rangle \left[\begin{smallmatrix} C \\ \langle +son \rangle \end{smallmatrix}\right]$, i.e. the reduplication of, say, *sl-* as **slaíslēp*, and the non-reduplication of *st-* and *sk-* as **saístald* and **saískáid*. What the above stipulation boils down to is merely to restate the fact in a quasi-mathematical way: it fails to be explanatory in that it comes closest to leaving the peculiar behaviour of *st-* and *sk-* as a matter of accident.

4) How can we explain the mechanism whereby the ablauting Class VII developed out of the originally reduplicating counterpart, and correctly to derive the actually attested new ablaut systems?

My assumption is that in pre-historic times in non-Gothic, too, Class VII is subject to reduplication in the identical manner as in Gothic. In other words, to form the preterite, Class VII adds μ to the immediate left of the stem. Such a morpholog-

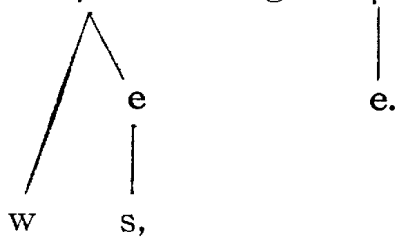


ical operation is, however, considerably low in its functional load: the verbs undergoing the process in question are limited to Class VII, which in turn is a minor class. This state of affairs is, needless to say, undesirable from a functional point of view. In addition to the low functional load, this inflectional-morphological process is unique in its mode of operation: it is a prefixation. This exceptionality of the operation makes it likely for the class under discussion to be eliminated in favour of the major operation, i.e. vowel alternation.

Taken together, Class VII as a reduplicating class is of marginal existence, being invariably exposed to a possible restructur-

ing (cf. Vachek 1980:374 ff.). And this vulnerability to restructuring came to be actualized in non-Gothic Gmc.

Let us turn to examine how the historically-attested vowel ablaut came to replace the reduplication. As mentioned earlier, the prefixation is a unique mode of morphonological operation insofar as inflexion in Gmc is concerned. Added to this is the fact that the prefix-initial segment (*w*) is unspecified in the lexicon, which also counts as a marked property. These and other factors led to the simplification by eliminating  from

the morpheme  resulting in

Such a line of simplification is much favoured: in the established ablaut series the preterite markers principally consist of vowels: e.g.  In other words, the prefixation was restructured so

as to fit into the ablaut pattern. Given the already existent ablauting mechanism, the resultant  without requiring further

stipulation, entered into the ablauting relation, hence a new ablaut series. Thus interpreted, the emergence of ablaut from reduplication can be explained in a straightforward way.

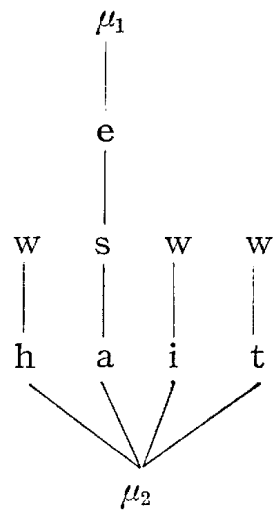
In the following, we will have a closer look at how the new ablaut series came about. Let us begin with the *hait*-type:

(16) Gothic *háit-* / *haíháit* 'command'
ON *heit-* / *hēt*
OE *hāt-* / *hēt*

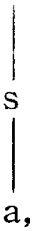
OS *hēt-* / *hēt*
OHG *heiʒ-* / *hiaʒ* (<**hēt*)

The morphological operation of prefixation is restructured into the following shape:

(17)



Notice that the newcomer *e* does not have its own prosodic holder (*s*). Thus, only the *s/w* structure of the stem is brought to bear on the formation of the morpho-syntactic word-form. In the absence of its inherent metrical slot, *e* comes to be associated with *s* of the stem[3]. The resultant

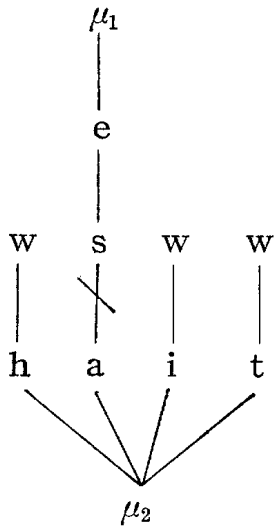


however, cannot surface as such, because it could not happen in principle that both *e* and *a* are pronounced at the same time. And here comes into the picture a principle, which I call Morphological Precedence Principle (MPP), and which I take to be a construct of a universal grammar:

(18) *Morphological Precedence Principle* (MPP)
In an expression plan construction designed to actualize a particular morpho-syntactically specified word-form, when,

in the course of operations, faced with conflicting choices, then choose the one which is maximally satisfying to the purport of the plan construction.

A few words of comment are in order here. By conflicting choices is meant a block of operations which stand disjunctive to one another, and so only one of which must be executed in a plan construction. Given the above principle (which may have yet to be further elaborated)[4], *e* is selected over *a* just because *e* is a preterite marker and it is here a question of the preterite-stem construction. Hence,



i.e. **heit*. The resulting **ei*, then, is converted to *ē* (>*ia* in OHG). For a fuller treatment of **ei*>*ē*, see below.[5]

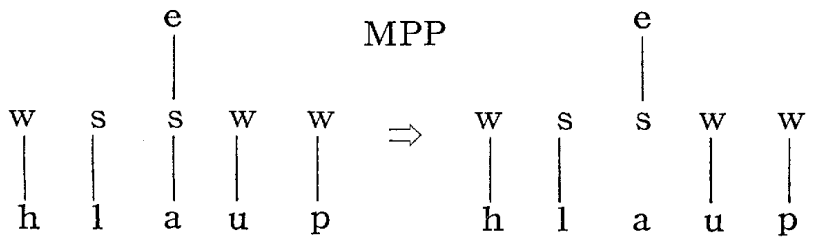
Let us move on to the *hlaup*-type:

(19)

Gothic	*hláup-*	/	*haíhláup* 'leap'
ON	*hlaup-*	/	*hljōp*
OE	*hlēap-*	/	*hlēop*
OS	*hlōp-*	/	*hliop*
OHG	*hlauf-*	/	*leop*

The innovation under consideration results in the following:

(20)



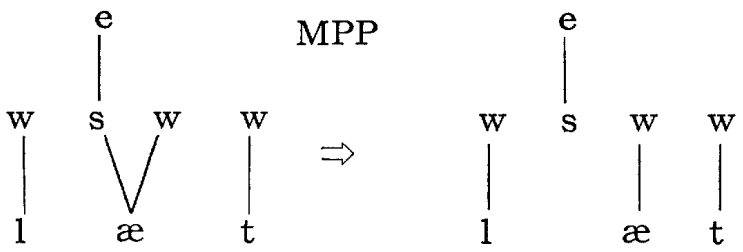
Later **eu* developed into *jó* in ON (cf. Noreen §§56, 101), *ēo* in OE (cf. Campbell § 275), *io* in OS (cf. Braune and Ebbinghaus § 13), and *eo* in OHG (cf. Braune and Eggers § 47), respectively.

Let us consider the *lǣt*-type, next:

(21) Gothic *lēt-* / *laílōt* 'let'
ON *lāt-* / *lēt*
OE *lǣt-* / *lēt*
OS *lāt-* / *lēt*
LHG *lāz-* / *liaz*

This type also can be dealt with without difficulty:

(22)



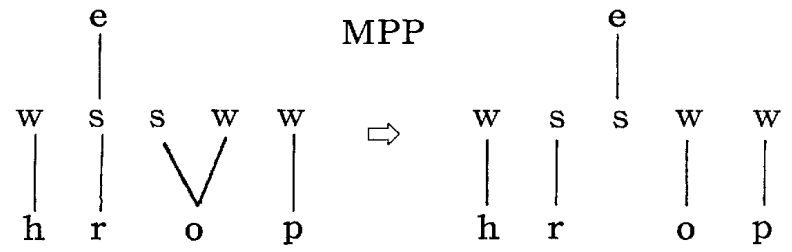
The newly produced *eæ* is then subject to monophthongization to appear as *ē*[6]. (For details, see below.)

Next, observe the *hrōp*-type:

(23) Gothic *hōp-* / *haíhōp* 'boast'
ON *blōt-* / *blēt* 'sacrifice'
OE *hrōp-* / *hrēop* 'shout'
OS *hrōp-* / *hriop*
OHG *hruof-*/ *hriof*

Again, this type is straightforward:

(24)



The resultant **eo* merged into the reflex of Gmc *eu*, except in ON, where it became *ē* in parallel to the others previously discussed.

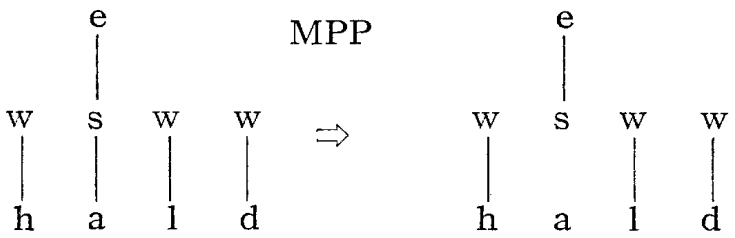
The foregoing illustrations point to a general accommodation pattern, whereby the newly introduced preterite-stem vowels, which do not fit into the already existent vowel inventories, are made to conform to the established systems. The diphthongs ending in a front vowel, which have no equivalence in the existent vowel inventories of each language, are subject to monophthongization, thereby totally assimilating the second element to the first (**ei*>*ē*, **eæ*>*ē*). In the case of the diphthongs in a back vowel, two conflicting resolutions are implemented: one is to modify the newcomer to the existent diphthong (**eo*>*eu* in OE, OS and OHG), and the other is the identical monophthongization (**eo*>*ē* in ON) appealed to for **ei*, **eæ*>*ē* above.[7]

There remains untouched the *hald*-type. Consider the following:

(25)	Gothic	*hald-*	/ *haíhald*	'hold'
	ON	*hald-*	/ *helt*	
	OE	*heald-*	/ *heold*	
	OS	*hald-*	/ *held*	
	OHG	*halt-*	/ *hialt*	

ON and OS pose no difficulty, involving only the mechanism thus far resorted to:

(26)



In contrast to this, OE and OHG defy such a simple description. First, let us look at OE more closely. Obviously, the analogous mode of derivation as appealed to previously does not

work here: the resulting monophthong is at variance with the attested *eo*. Moreover, an attempt to reconcile **e* with *eo* by invoking a subsequent phonological change is equally fruitless: no independently-motivated change presents itself to which **e*> *eo* could be ascribed.

A superficial similarity might suggest Breaking as a possible candidate, but a closer consideration takes exception to this. Let us examine in some detail how such a line of reasoning comes to a standstill. Lass and Anderson (1975:250), in their attempt at a generative description of OE Class VII verbs, derive *heold* from the underlying *hald* (more precisely *hAVId*, though nothing significant hinges on the simplified presentation being made here for the sake of exposition) in the following manner:

(27)

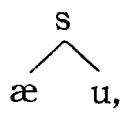
	hald
Qualitative Ablaut	held
Breaking	heold
Output	*heold*

A case in point is the application of Breaking. The breaking of **e*, apart from the alleged inputs as typified by *heold*, does not come into operation in the context ____lC:

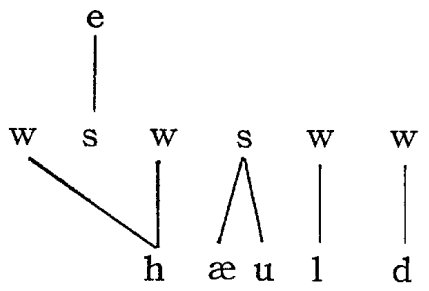
(28) *feld* 'field'
helm 'helmet'
helpan 'help'
meltan 'melt'
sellan 'sell'

It is small wonder, then, that Lass and Anderson posit the exception feature [+Breaking] in order to secure the derivation like /held/→/heold/. This is tantamount to saying that they give a full recognition to the fact that the source of *eo* as in *heold* cannot be sought in an ordinary phonological change. Therefore,

we should abandon a purely phonological treatment of the issue.

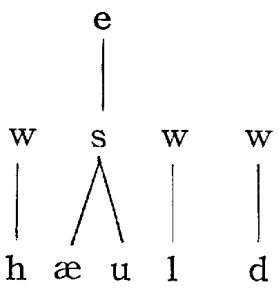
The above observation points to at least a partially morphological basis of our problem: only the subclass of Class VII as represented by *heold* exhibits the peculiarity under consideration. Such a line of reasoning leads us to explore the possibility that the particular development from the reduplicating verbs to the ablauting counterparts in OE gave rise to *eo* from **e*. The reduplication-based preterite stem formation for *hald* in Pre-OE after the introduction of Breaking should be assumed to be as follows: (For the justification for the metrical representation of OE short diphthongs, e.g.  see Suzuki (1982).)

(29)



The morphological restructuring, whereby the prefixation is replaced by the vowel alternation, brings about the following picture:

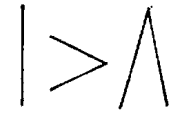
(30)



Then, MPP chooses *e* over *æ* as a constituent of the word-form in question, hence **heuld* (>*heold*). The latter process, i.e. **eu*>*eo* is, furthermore, far from being isolated (cf. Campbell § 277).

Below I shall substantiate the interpretation outlined above.

Firstly, as briefly mentioned earlier, I take the elimination of the reduplication to have been implemented in pre-historic times of each descendant language (around the fourth and fifth centuries, A.D.), rather than in North-West Gmc. In the case of OE, in particular, I place the restructuring under discussion after Breaking, thereby ascribing the emergence of *-u* to a prior operation of Breaking (**æ*>⌜*æu*⌝[18], or metrically represented *s s



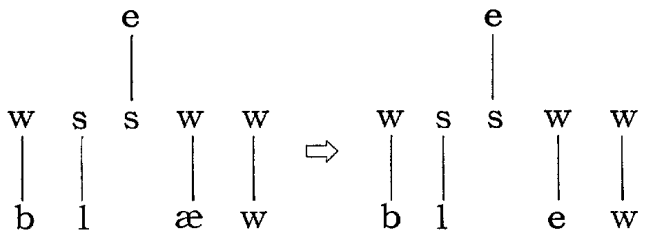
æ æ u).

This assumed chronology is fully justifiable. To see this, consider the following:

(31) *blāw-* / *blēow* 'blow'
cnāw- / *cnēow* 'know'
sāw- / *sēow* 'sow'

The stem-vowel goes back to Pre-OE **ǣ*. The attested *ā* is a result of the *ǣ*-Retraction before *w* (cf. Campbell § 151). Now if the morphological restructuring had come about before the working of the retraction, then the resultant new preterite would have been **blēw* by virtue of the accommodation rule of independent motivation referred to earlier:

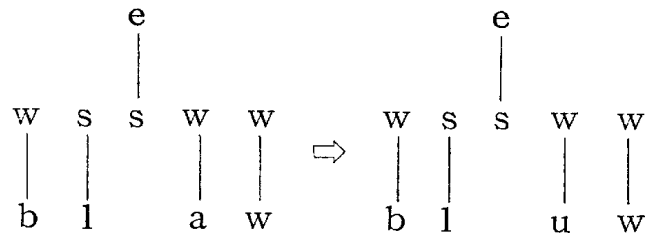
(32)



cf. **eæ*>*ē*

If, on the other hand, the converse had been true, then the following picture would emerge, which is actually borne out by the fact:

(33)



cf. **ea>eu*

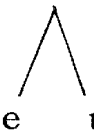
Hence, the chronology *ǣ*-Retraction>the Restructuring has been established. And it is a commonly held view that the *ǣ*-Retraction and Breaking, having many features in common, occurred approximately at the same date (cf. Campbell §255). From this, it follows that Breaking procedes the Restructuring.

Unlike Lass and Anderson, however, the breaking I invoke here is not **e>⌜eu⌝*, but **æ>⌜æu⌝*, which is well-attested in the environment in question:

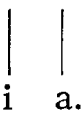
(34) *eall* 'all'
healp 'helped'
sealfian 'anoint'
mealm 'soft stone'
wealh 'foreigner'

In this respect, the occurrence of *-u* is phonologically-motivated within my framework. Yet, the emergence of *e* in combination with *-u* is a result of the morphological operation which alternates *æ* with *e*. Hence, a morphologically restricted presence of *eo* before *lC*. In other words, the peculiarity of *-eolC-*, i.e. its defective distribution defying a purely phonological characterization, is reducible to the absence of morphological operations involving **e/æ(u)* in morphological classes other than in Class VII.[9]

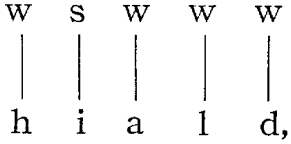
A word must be said, furthermore, concerning the operation of MPP: namely the selection of *e* over *æ*, rather than that of *e* over *eu*. Recall that the purport of MPP is in effect to make a choice among melodic elements which could not surface AT THE SAME TIME. Since the prior working of Breaking secures the

branching *s*, i.e.  as well-formed, *e* does not stand in conflict with *-u*:  has already established itself as a well-formed member of the inventory. Hence, *e* is at variance with *æ* alone. Therefore, MPP is relevant only to *e* and *æ*, resulting in the selection of *e*.

It is interesting to note that the analysis presented above is equipped with a more explanatory power than what has been traditionally entertained. The view which comes under criticism here ascribes the occurrence of *heald-/heold* to the analogy with the *hlaup*-type (i.e. *hlēap-/hlēop*). Under this interpretation, the association of *ea* with *ēa* led to the introduction of the corresponding (short) diphthong into **held* hence *heold*. This theory, however, leaves more to be explained than ours. First, it cannot explain why the analogy did not run conversely, that is, why *hlēop* by the influence of *held* was not assigned *ē*. Second, it is incapable of adducing a principled account of why in Class III *help-/healp* did not follow the pattern of *weorp-/wearp*, when an equally favourable condition for analogy seems to obtain. In light of these unsolved problems, we are safe in concluding that our theory commanding greater explanatory power is to be adopted.

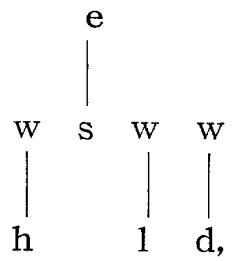
Let us move on to the case of OHG. Again, a discrepancy arises between the predicted value and the attested one. However, an appeal to the analogous mode of explanation as explored above cannot be justified in this case: in OHG there occurred no sound change comparable to Breaking, which brings into being the branching *s*. This amounts to saying that *ia* is unmistakably associated with *sw*, i.e.  Since the reflex of

*$\bar{e}$ is this very sound, it is reasonable to take *hiald* to be from *$h\bar{e}ld$. Therefore, what is required of us is to account for the origin of this extra segment *w* in



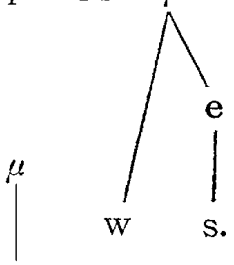
which is clearly not an original member of the stem.

At this point, I agree with van Coetsem (1964²:63), who maintains that $\bar{e}$ came about by analogy on account of the productivity of $\bar{e}$. And as evidence of the assumed productivity he refers to the fact that some members of Class VI verbs also suffer the intrusion of $\bar{e}$ (*ibid.*, 73 note 102). Thus, the original form is assumed to have been



in parallel with ON and OS. Then, the suggested analogical extension led to the replacement of *e by $\bar{e}$, hence *ia* as in *hiald*.

In summary, then, our descriptive apparatus can successfully account for the emergence of ablaut from reduplication in non-Gothic by appealing to the well-characterizable simplification of the marked prefix



The purported simplification results in the form e, which, given a couple of principles, i.e. UAC and MPP, and certain language-specific conditioning factors, contributes to developing the new ablaut series as attested in each descendant language. By offering a principled interpretation of the issue, therefore, the proposed analysis is in a better position to claim credibility than others have ever found themselves in. To substantiate this claim, we shall turn to the critique of

the past research in the following section.

4. Review of Previous Works

This section is designed to give critical comments on the recently advenced theories concerning THE DEVELOPMENT OF ABLAUT OUT OF REDUPLICATION in non-Gothic. This deliberate narrowing of the scope of review is based on the common view[10] that the remaining theories, i.e. the so-called contraction theory (including various versions of it) and the IE ablaut theory are both untenable.

4.1. Höfler (1970)

Höfler views the change at issue as a consequence of the language-internal pressure towards the canonical monosyllabic preterite, which he called "Verkürzungssprung" by way of emphasizing its non-phonological initial conditioning. The implementation of this "Systemzwang" is subject to a further condition, which requires the concomitant change to be confined to the minimum. This is equal to demanding that the resultant forms should differ minimally from their predecessors in their phonological make-up. It is worth remembering, moreover, that he explicitly (and correctly) places the change in the "Entfaltung-Schema", i.e. he assumed the change to have occurred independently of each other in each descendant language.

Although he lays stress on the system-internal aspect of the change, he fails to present the exact mechanism involved in terms of the modification affecting a grammar as the system of rules. In light of this, therefore, before proceeding to criticize his theory, it seems appropriate to translate it into the generative framework for ease of evaluation.

"Systemzwang" in general can be restated as a speaker's tendency towards optimalizing the grammar. Thus, Höfler's "Ver-

kürzungssprung" results from the speaker's efforts to generalize the canonical monosyllabic preterite forms throughout the whole verbal system. Now what is crucial about Höfler's framework is that this generalization presupposes the existence of the reduplicating preterite at the time of its implementation. Otherwise, the resultant stem-vowel *e* would remain unexplained: the only source of the *e* in question is the vowel of the reduplicating prefix. Hence, it follows that the speaker's strategy in deriving a new monosyllabic preterite, *hēt* for instance, is to construct a kind of adaptive rule which modifies the former reduplicated form *hehait* into the desired counterpart *hēt*. Notice in this connection that the output forms are subject to the above-stated condition whose function it is to confine the concomitant loss of communicability to the minimum. And this condition as Höfler characterizes it amounts in effect to deleting the initial consonant (cluster) and moving *e* onto the position immediately before the stem vowel. Thus, one comes out with the following rule:

(35) $C\ e\ C_0\ V \Rightarrow ø\ 3\ 2\ 4$
$1\ 2\ 3\ 4$

Höfler's characterization as has been explicitly paraphrased above arouses doubt on several points. First, it is hard to understand why every descendant language except Gothic should undergo one and the same mode of restructuring, i.e. by means of (35). This question becomes more serious when we come to think of the fairly complicated way of operation which (35) embodies: deletion plus movement. Furthermore, it must be noted that (35) does not seem to be the only way of implementing the "Systemzwang" in question. The reverse ablaut as van Coetsem proposes it is just another possibility. Taken all in all, it can be said that Höfler's framework fails to capture the change at issue in an explanatory way.

In addition to the conceptual implausibility just pointed out, the derivation of the *hald*-type poses a difficulty. According to Höfler's interpretation (*ibid.*, 115), the original **fefall* is subject to the "Verkürzungssprung" in such a way that the **e...a* comes to be replaced by *ē*. In other words, he takes *ē* to be an organic development. This view is, however, unwarranted. As indicated earlier, the ablauting vowels corresponding to **e...a* as in **fefall* are *e* and *ē*. In the face of these reflexes, two possibilities present themselves[11] in determining which is an original value: *e* (my hypothesis) or *ē* (Höfler's hypothesis). In evaluating these competing views, one of the most important criteria is the relative plausibility with which the historically attested values could be derived from the alleged original. In this respect, as is shown immediately below, it is the *e*-hypothesis which is more favoured. By way of illustration, I repeat (25) as (36) for the sake of convenience:

(36) Gothic *hald-* / *haíhald*
ON *hald-* / *helt*
OE *heald-* / *heold*
OS *hald-* / *held*
OHG *helt-* / *hialt*

ON and OS point to **e*, while OHG to **ē*. OE is compatible with either value. The important thing is that ON *e* could not be attributed to any independently-motivated change, phonological or morphological. Whereas, OHG **ē* can be explained by analogy, which in turn is ascribable to the productivity of **ē* (see above). Considering all this, it can be fairly concluded that the original value should be *e*, rather than *ē*. Thus, the inability of Höfler's analysis to derive *e* directly from the origin mutilates againt the acceptability of his theory.

4.2. Barnes and Esau (1973)

Barnes and Esau (1973; henceforth B-E) attempt to ascribe the development of the ablauting seventh class to the extension of the already existent ablauting rules in North-West Gmc. As it stands, however, their analysis is fraught with many deficiencies. First, and most damaging to them, the replacement of reduplication by ablaut cannot be explained in anything approaching a principled manner within their framework. According to them, North-West Gmc, just before giving up reduplication in favour of ablaut, has the following ablaut rules for deriving the preterite (B-E:27):

(37)

$$V \rightarrow \begin{pmatrix} [+\text{low}] \\ [+\text{long}] \\ \emptyset \end{pmatrix} / [\overline{+\text{Past}}] \begin{pmatrix} \overline{-\text{Plur.}} \\ -\text{low} \\ C \\ RC + \end{pmatrix} \qquad \begin{matrix} \text{(i)} \\ \text{(ii)} \\ \text{(iii)} \end{matrix}$$

(37i) forms the singular preterite for Classes I-V. (37ii) derives Class VI and the plural preterite of Classes IV and V. The last subrule (37iii) secures the remaining past forms, namely the plural of Classes I-III. These derivational histories can be schematically represented as follows:

(38)

	Sg	Pl
I	(37i)	(37iii)
II		
III		
IV		(37ii)
V		
VI		

When reduplication became subject to restructuring, whereby it gave way to ablaut, under the most natural interpretation, the once-reduplicating verbs should have fallen under the sphere of (37iii): (37i) is by virtue of the specification [-low] not applicable, nor is (37ii), owing to ____C. In other words, Class VII

should behave parallel to the preterite of Classes I-III, just because its members are eligiable for ____RC:

(39) *hait* cf. /beit/→/bait/ *bīt-/bait* 'bite'
hlaup cf. /beud/→/baud/ *beud-/baud* 'offer'
hald cf. /help/→/halp/ *help-/halp* 'help'

From this, it follows that the resultant alternation would be counterfactually **hait/*hit*, **hlaup/*hlup* and **hald/*huld*. Curiously enough, however, B-E make no reference to the just noted possibility, which is what one reasonably arrives at given their initial analysis (37). Instead, B-E, without offering any arguments, simply take (37ii) to be the required substitute in spite of the reason to the contrary, namely that the SD cannot be matched with the new inputs. Thus, we are safe in dismissing their proposal on account of the ill-articulated nature of their theory on this point.

To do justice to their efforts, however, I would like to point out other inadequacies. Remember though that the foregoing criticism is enough to invalidate their interpretation. In considering how the rule extension arises, they appeal to the "already existent" rule like this (B-E:38):

(40) $\begin{bmatrix} V \\ +low \end{bmatrix} \rightarrow [+long]$

This is peculiar, indeed. For under their hypothesis given earlier (cf. (37)), the rule in question does not come into the picture. Where does it come from, then? This is what must be specifically argued for. Notice in this regard that the postulation of (40) amounts to missing the generalization by duplicating the lengthening rule, one for the plural preterite and the other for Class VI, when the two phenomena are reducible to a unitary description as is evidenced in (37).

Again giving B-E the benefit of doubt, I proceed to examine

other difficulties. The extension of (40) to Class VII, they continue to argue, would produce *ōi* and *ōu* among others. These vowels, however, stand at odds with the existent vowel inventory. In order to reconcile the emerging discrepancy, (40) is modified into the following (*loc. cit.*):

(41) $\begin{bmatrix} V \\ +low \end{bmatrix} \rightarrow \begin{bmatrix} +long \\ -low \end{bmatrix}$

Now a question arises: why must new vowels be rendered compatible by resorting to a modification of the morphological rule at all? More specifically, why do B-E apriorically rule out the possibility that the contradiction is resolved by adding some adjustment rule or other, say, contracting *ōi* and *ōu* into *ō*. This hypothetical rule is, moreover, phonetically natural: it is observed in a wide variety of languages.[12] Besides, the plausibility of the suggested contraction is enhanced by the fact that the application of (40) to *aR* brings about the well-formed *ō*. This is another indication that B-E's model is far from being sufficiently constrained.

Last, but not least, their postulation of long diphthongs as a stem-vowel is ill-supported. Their claim is based on the following three grounds (B-E:27):

1) *e* in ___RC must be assumed to be long;
2) Some instances of *ē* originate from **ēy* (<*eHy*);
3) The subsequent development of **ei* as in **heit* must be differentiated from **ei* (>*ī*).

Reason 1) is groundless. As argued for previously, *e* should be an original value, ē being an innovation. Reason 3) is far from conclusive: the exemption of **ei* as in **heit* from being monophthongized can be reasonably ascribed to its emergence at a time when the unity of Common Germanic has collapsed. (Recall that **ei*>*ī* in PGmc. Cf. Krahe and Meid 1969: § 32).

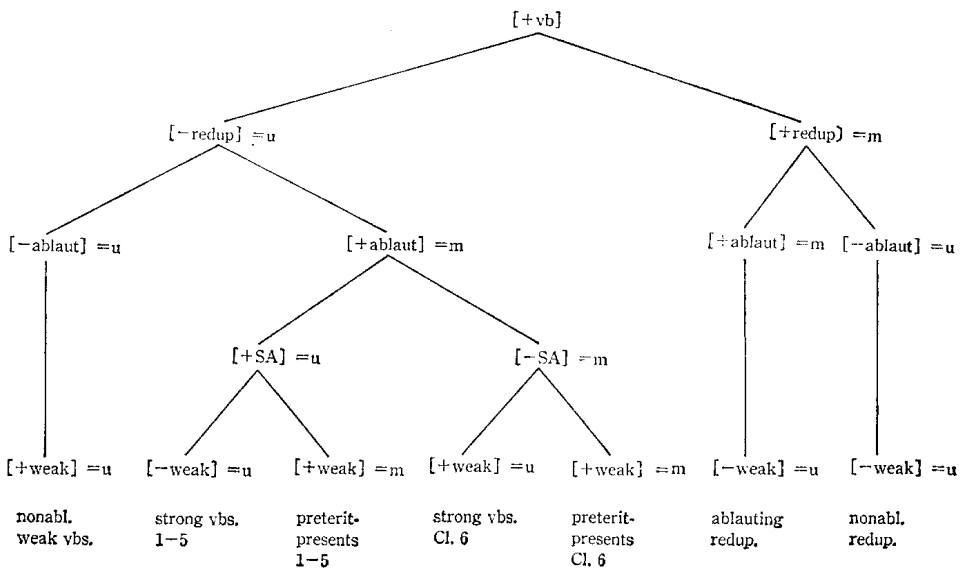
Reason 2), furthermore, seems to have no bearing on the issue: it simply concerns the development of some instances of **ēy*'s, and nothing more.

4.3. Fullerton (1977)

Fullerton (1977) draws our attention to the symmetrical distribution of *e/a* between Classes I-VI on the one hand, and Class VII on the other. In order to give an explicit expression to this generalization, he introduces the lexical feature [RD] (=Reverse Distribution) to Class VII. By linking this feature with the already existent ablaut rules (originally limited in the scope of operation to Classes I-VI), he successfully derives Class VII insofar as synchronically viewed. This analysis, however, leaves totally unexplained why the loss of reduplication led to the particular grammar he proposes for North-West Gmc. More concretely, it illuminates very little when it comes to the question how the former reduplication was replaced by the new system incorporating [RD].

Let us look at the problem in some detail. For Stage I, when reduplication is still operative, he assumes the following system of verbs (*ibid.*, 83):

(42)

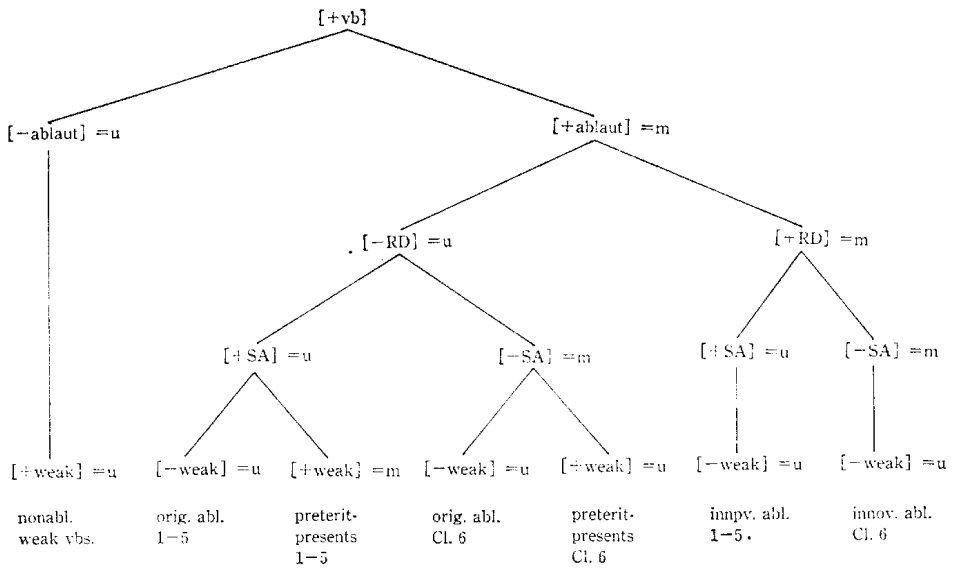


Then, at the time immediately after the loss of the reduplicating rule, other things being unchanged, the following alternation should surface:

(43) **hait/*hait*
**hlautp/*hlaup*
**hald/*hald*

The problem is this: how can people arrive at the generalization which Fullerton posits for Stage II (44) from the data they are encountered with, i.e. (43)

(44)



There is little likelihood that a learner comes out with [RD], when the preterite stem-vowel *e* has yet to be established. The purported reanalysis by means of [RD] presupposes the abstractability of the very feature from linguistic data then available, i.e. the existence of the stem-vowel alternation involving *e/a*. Seeing that no empirical motivation is at hand for setting up [RD] in grammar construction, it is extremely hard to accept the picture he assumed for Stage II. We can reasonably say that Fullerton's characterization of the occurrence of the ablauting Class VII as a grammar change, or a restructuring of the underlying system, fails to be convincing in that it is underiva-

ble from the then existing surface forms. In other words, his analysis is incompatible with the situation where a grammar change comes about, i.e. where a learner has access only to the primary linguistic data, not to the existent grammar(s) entertained by his elders.

4.4. Voyles (1980=1981)

Voyles (1980; 1981:120-153) sees the development of the ablauting Class VII from the reduplicating counterpart attributable to the fixation of stress on the initial in North-West Gmc. The new stress pattern in turn gave rise to a chain of reanalyses whereby the once-reduplicating vowel came to be regarded as the stem vowel, and eventually a new ablaut pattern took the place of reduplication.

The initial stage of this purported chain of changes, however, raises a serious objection: his postulated set of rules for North-West Gmc which serves as a point of departure for the alleged subsequent restructurings does not seem to be an optimal characterization of the linguistic state then obtained. This is to say that the reanalysis which he claims to have been worked out by a new generation of people is unwarrantedly complicated, and therefore empirically of a highly suspicious nature. Let us consider his set of rules for the initial stage (Voyles 1980:105-106):

(45) (GF3) To form the nonparticipial past of 7th-class strong verbs:

(1) Root V →/e/+root V
/ for verbs with the MS # V+C_1 #, i.e. verbs whose roots begin with the root V and end in a single C or C cluster. This rule applies in the derivationof forms 1 to 5 under D2 (i.e., the corresponding forms under D1, but with the stress on the reduplicatiug syllable).

(2) The following rules apply to verbs with the MS

C_1+V+C_0 #, i.e. to verbs whose roots begin with at least one C. Rules 2a, b, c apply in the derivation of forms 5 to 28 under D2 (i.e., D1).

(2a) Root V →/e/.

(2b) Copy into the verbal root immediately after the root V the morpheme-initial consonant(s), i.e. C, of the root.

(2c) Insert the original present-tense root V into the verbal root after the past-tense root V (which is /e/ by 2a) and immediately after the morpheme-initial C (which is inserted by 2b).

(3) Delete sonorant consonants occurring in morpheme-initial consonant clusters after obstruents. This rule applies in the derivation of forms 7, 8, 13, 17, 18, 23, 24, and 25 under D2 (i.e., D1).

(4) If the C inserted by 2b are /s/ + (optionally) /l, m, n, r/, change the /s/ to /z/. This rule, which may have been optional, applies in the derivation of forms 22, 24, and 25 under D2 (i.e., D1).

(5) The stress rule. (This is rule 3 under GF2 and GF1, but without the proviso excluding reduplicative prefixes.)

(6) The ablaut rule whereby the original present-tense vowel /ē/ (inserted in past-tense forms by rule 2c above) is changed in some verbs to /ō/. This rule applies in the derivation of forms 20 and 22 under D2 (i.e., D1).

Little could be more complicated than the above. Thus, what is demanded of Voyles first of all is substantially to argue for the postulation of such a tremendously complicated set of rules. Just to raise one dubious point here, there appears to be no justification for setting up two separate rules, one for MS # $V+C_1$ # and the other for MS # C_1+V+C_0 #. Only one rule is

sufficient as demonstrated below:

(46)		hait	auk
	2a	het	ek
	2b	heht	____
	2c	hehait	eauk
	Output	*hehait*	*eauk*

That is, to posit (1) and (2a) is to make a distinction without a difference. If no special rule is necessitated for deriving vowel-initial stems like *eauk*, then no possibility arises for the rule in question (=(1)) ever to be posited by succeeding generations, still less for it to be generalized, whereby MS # C_0+V+C_0 # comes to fall under its domain of application (*ibid.*, 117). This then amounts to the failure to offer a principled explanation of the occurrence of $\bar{e}$ and *eu* as opposed to *e* in the new preterite: *e* should be the only root vowel within Voyles' framework. Thus, his analysis proves to be of questionable validity: his GF 3 (45) is a grammar which one is most unlikely to come out with given our assumption that children opt for an optimal grammar.

Another difficulty with his interpretation relates to the emergence of *eo* as in *feold* in OE. According to his explanation (*ibid.*, 118), the form at issue comes from **feld* through Breaking: **feld*> (by Breaking) *feold*. His assumed derivation is, however, ill-founded. Just the same criticism as levelled against Lass and Anderson (1975) above applies here: no diphthongization of **e* in the context ____1C is attested elsewhere. Thus, the appeal to Breaking in this case is backed by no phonological evidence, and consequently it should be rejected.

5. Arguments for a Metrically-based Prosodic Theory of Reduplication

In Section 3. 1., I have set forth a certain refinement to the prosodic model of morphology: a prosodic template should be

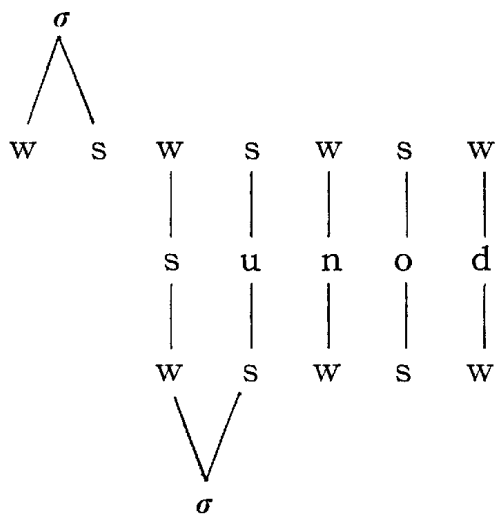
represented in terms of *s/w*, rather *V/C*. This proposal is justified by the requirement that Gothic reduplication can be adequately described only by referring to the non-terminal metrical structure of the morphemes involved. In adhering to the *V/C* based representation as currently held, we could not associate the non-terminal node to the terminal counterpart as is required. In other words, the Gothic reduplication points to the isomorphism in terms of structuring principles between the terminal and the upper structures of melodic elements. This isomorphism can be best expressed by appealing to the independently-motivated metrical hierarchy. In the following, I shall adduce further supporting evidence for my proposed revision of the theory.[13]

McCarthy (1981:413) (also cf. Lieber 1980:153 ff.) mentions Tagalog reduplication, an apparent counterexample to his theory of reduplication:

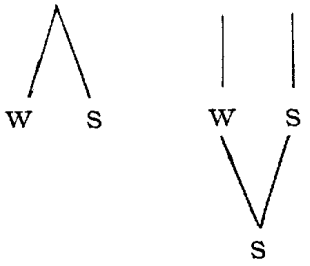
(47) um-sunod 'obey'/pag-su-sunod 'obeying'
kandīlah 'candle /pag-kakandīlah 'candle vendor'
um-lākad 'walk'/pag-lalākad 'walking'

In the face of this, McCarthy posits a feature [+reduplication], apparently an ad hoc way out. As an alternative solution, I invoke the *s/w*-based characterization of a prosodic template, which goes as follows:

(48)

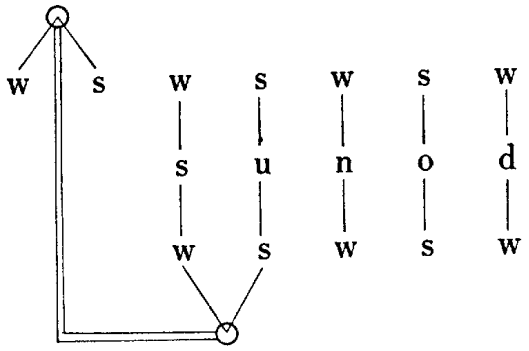


The first matching, whereby the terminal elements come under consideration, is not workable, because the cross-line would result. Then, the second association should be implemented: thus, σ and s u get associated. In this way, the desired

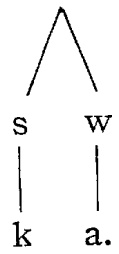


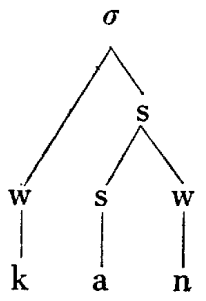
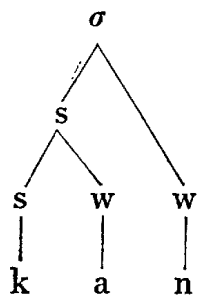
result comes about:

(49)



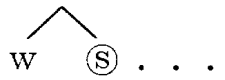
Let us go on to the second example, *kandīlah/pag-kakandīlah.* This cannot be treated as easily as the former case: as Lieber (*loc. cit.*) correctly points out, the first two segments *k* and *a* do not form a constituent in terms of syllable structure, that is * Rather, *a* stands in a closer relation to the following *n* to constitute with it a rime. Hence the correct metrical



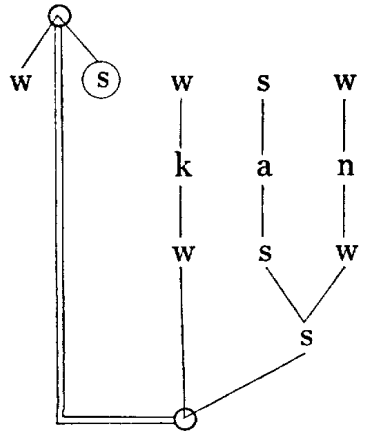
structure of *kan*-should be  rather than* 

Thus interpreted, the derivation could not be identical wth the previous example which involves  This is not to say, however, that the two cases under discussion must be treated separately. On the contrary, as exemplified below, we can subsume the first case under the same rubric as the second one, by giving a slight refinement to the reduplicating rule.

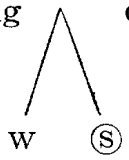
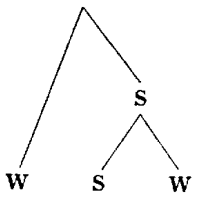
I propose the following characterization:

(50) 

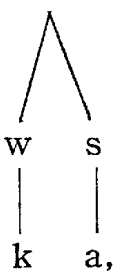
Ⓢ stands for a designated terminal element, i.e. the *s* which in turn is dominated solely by *s*'s. Given this restriction, we can automatically derive the second example as well as the first:

(51) 

As indicated above, the association is made between the node

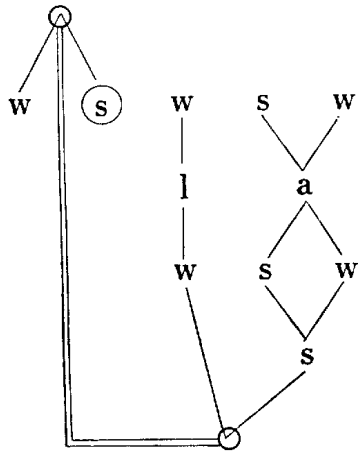
dominating  on the one hand, and  on the other.

This automatically excludes the possibility of line-crossing. Moreover, the additional restriction imposed on the prefix assures that w does not get involved in the reduplication: only

the designated terminal element can come under the node *s*. Hence  i.e. *-kakand-*.

It must be noted, further, that the proposed analysis, without resourse to an additional apparatus, is capable of explaining the third example, i.e. the one involving the concomitant shortening of the reduplicating vowel:

(52)

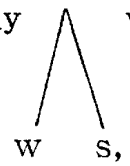


The foregoing discussion, therefore, strengthens my metrical

version of reduplication theory.

Another support comes from Classical Greek. The situation is comparable to Gothic *st-* and *sk-*. Recall that *s-* in *st-* and *sk-* could not be associated with the unspecified *w* of the prefix by virtue of its being immediately dominated by *s*. The same applies to the Greek case. Observe the following examples:

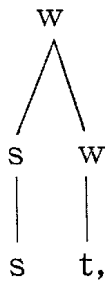
(53) σκαίρω/ἐσκαίρκα 'skip'
σκέπτομαι/ἔσκεμμαι 'look about'
σπάω/ἔσπακα 'draw'
σπείρω/ἔσπειρκα 'sow'
στέλλω/ἔσταλκα 'send'
στρατεύω/ἐστράτευκα 'serve in war'

The reason why *σεστρατευκα could not be realized is that it is directly dominated by *s*. This characterization is justified by the behaviour of the clusters consisting of a stop and a sonorant, namely  which take part in reduplication:

(54) κλέπτω/κέκλεφα 'steal'
κρίνω/κέκρικα 'separate'
πλέω/πέπλευκα 'sail'
πρᾶττω/πέπρᾶχα 'do'
*τλάω/τέτληκα 'bear'
τρέπω/τέτροφα 'turn'

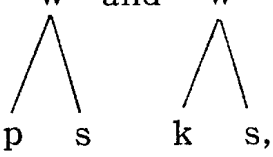
If, on the other hand, one characterized a prosodic template in terms of the *CV* configuration, no principled way of ruling out *σεστρατευκα would be available. Thus, this restriction imposed on the Greek reduplication again counts for my hypothesis.

Some readers may wonder why Greek does not follow the

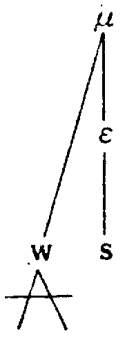
pattern of Gothic by reduplicating  thereby producing

*στεστρατευκα. They may go one step further to cite this as an counterexample against my proposal. This is not a legitimate line of argument, however. We can easily account for this apparent peculiarity without weakening my claim whatsoever. To see this more closely, consider the following:

(55) φεύδω/ἔφευκα 'cheat'
ξαίνω/ἔξανκα 'scratch'

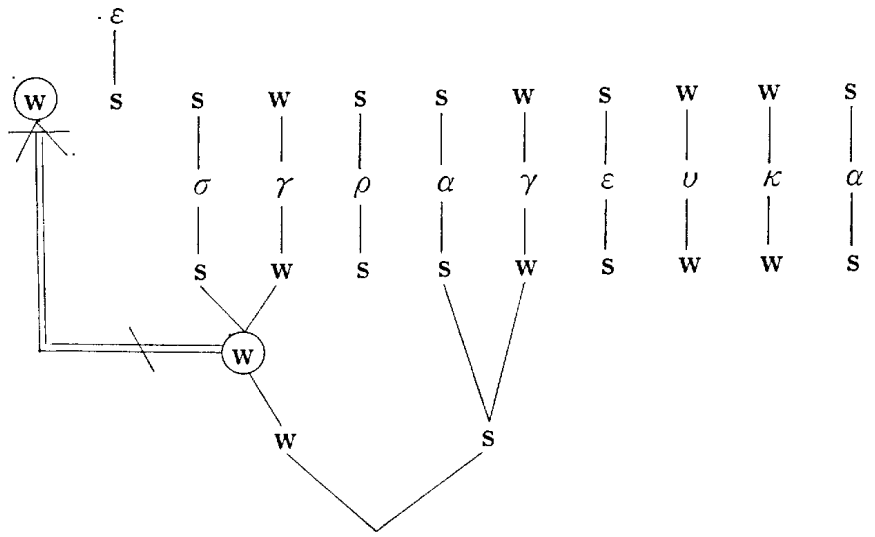
The above examples indicate that the failure of reduplication is a characteristic shared by conconant clusters including complex consonants (φ, ξ) (excluding of course the combination, a stop + a sonorant treated earlier). The important point is the internal structure of φ and ξ. As I argue elsewhere (Suzuki (in preparation)), the consonants at issue should be represented as  and respectively. Given this representation, we could

formulate the Greek reduplicating rule by incorporating into it the prohibition against  on the part of the reduplicating prefix:

(56) 

The restriction just given is in turn capable of ruling out the possibility of associating *στ-* with w:

(57)



Therefore, we can automatically explain the behaviour of *στ-* and others which are apparently challenging to my theory.

6. Concluding Remarks

The prosodic model of Gmc reduplicating verbs being explored in this paper is an improvement over those hitherto advanced in the following respects:

1) It can produce all and only the well-formed reduplicating forms in Gothic in a principled manner. In particular, the peculiar behaviour of *st-* and *sk-* is automatically predictable within my framework.

2) It provides an adequate explanation as to the mechanism whereby a new ablaut series developed out of the former reduplication in Gmc other than Gothic. Given the descriptive apparatus proposed above, the historically-attested ablauting Class VII lends itself to a straightforward characterization.

The prosodic model of Gmc reduplication thus justified entails some refinement on the part of the current prosodic theory of

reduplication in general. Specifically, it requires that an association should be matched in terms of metrical structure. That is, the mapping should proceed from the lowest *s/w* node up to the higher ones until the successful matching has been attained. This line of enrichment is, furthermore, demonstrated to be fruitful in that some apparent counterexamples to the current theory can be rendered adequately describable.

NOTES

1 Van Coetsem (1964[2]), for example, contains useful summaries of previous research.

2 These lines may sound highly speculative, but this does not count against the particular apparatus I propose for Gmc Class VII verbs. My point here is simply to place the proposed model in a broader perspective in the hope that by doing so the device will command some psychological plausibility.

3 The required association of *e* with *s* needs no ad-hoc stipulation. It is phonologically motivated: that is, on phonological grounds (sonority. notably) *e* is most compatible with the position which *a* occupies.

4 Admittedly, the principle just suggested is analytic in its content, given the notion of morphological operation itself, whose job it is to select a particular morpheme (or allomorph) to the exclusion of other potentialy opposing ones. Therefore, it may not be an independent principle, rather it should be understood to be of a derived status, a theorem as it were.

5 As will be indicated below, the change $*ei>\bar{e}$ is a part of a more general accommodation rule. Note in passing that the rule at issue came into operation at the time when the Common Gmc had already split into descendant languages. Therefore, one of the difficulties facing the proponents of $*ei>\bar{e}$, namely the occurrence of $*ei>\bar{\imath}$ beside the postulated $*ei>\bar{e}$, ceases to be recalcitrant.

6 Notice that once μ has established itself as a preterite marker as

μ
|
e

opposed to μ as in Gothic *ιaílōt*, the latter could not leave any trace

μ
|
ō

in the new ablaut pattern to give **leot*, for example. The reason is that the possibility of linking μ with w is in principle ruled out.

μ
|
ō

7 In addition to the phenomena referred to in the text, the following also strengthens the validity of the postulated accommodation rule: **seoxæ*>**sexæ*>**seæ*>*sē* (pres. subj. of *sēon* 'see') (cf. Campbell §237).

8 '⌐ ¬' is intended to show definitely that OE short diphthongs are monosegmental, i.e. equivalent to monophthongs with respect to length. For details, see Suzuki (ms.).

9 The ablaut series, although manifesting the *e*/*æ* alternation, is not involved in producing the peculiar *eo* in question, because *e* as opposed to *æ* is a lexically registered entity.

10 Recent works are more or less unanimous in dismissing those classical theories: e.g. Barnes and Esau (1973), Fullerton (1977), Höfler (1970), Voyles (1980).

11 Actually, however, the third possibility remains: both *e* and *ē* are original. This view should be least plausible owing to the conceptual complexity it entails. Therefore, I leave this out of consideration here.

12 Cf. Greek, Latin, OE, just to name a few.

13 At this point, it may be in order briefly to comment on Halle and Vernaud's (1980) line of revision. In rough terms, their proposal is similar to mine in spirit, but not in substance. Both attempt to incorporate some hierarchical structures into the current model. The essential difference, however, concerns the internal structure of 'onset': Halle and Vernaud, by positing O (=onset) as opposed to R (=rime) without reference to the former's constituent structure, could not carry us very far in explaining the phenomena dealt with in this paper. For, it is precisely this structure, which they fail to make a formal recognition of, that is crucially involved here.

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